



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

A-S

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

08/845,897 04/28/97 IMAM

M 77.897

IM22/0825

ASSOCIATE COUNSEL PATENTS  
NAVAL RESEARCH LABORATORY  
CODE 3008 2  
WASHINGTON DC 20375-5000

EXAMINER

COPENHEAVER, B

ART UNIT	PAPER NUMBER
----------	--------------

1771

14

DATE MAILED:

08/25/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

08/845,897

Applicant(s)

Imam et al.

Examiner

Blaine R. Copenheaver

Group Art Unit

1771



☒ Responsive to communication(s) filed on Jun 14, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-22 is/are pending in the application.

Of the above, claim(s) 5, 6, 8-10, and 12-16 is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-4, 7, 11, and 17-22 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1771

1. The request filed on June 14, 1999 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 08/845,897 is acceptable and a CPA has been established. An action on the CPA follows.
2. Claims 5, 6, 8-10, and 12-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected specie(s), the requirement having been traversed in Paper No. 4.
3. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 18, which is dependent upon claim 17, contradicts claim 17, because claim 17 requires a uniform pore diameter, whereas claim 18 requires a pore size gradation along a direction of the metal foam.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
5. Claims 1-4, 7, 19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher et al. (US 5,222,561). The porous metal fiber structure of Fisher reads on the definition of an open cell foam provided by the applicant on page ¶6, line 13 et seq of the specification. Thus, Fisher anticipated the claimed subject matter.

Art Unit: 1771

6. Claims 1-4, 7, 11, 19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsang et al. (US 4,605,595). Tsang discloses that suitable binders include epoxy resins and phenolic resins. Tsang anticipated the claimed subject matter.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 7, 19, and 22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reitz (US 4,759,000). Reitz discloses the claimed invention except for literally disclosing that the metal foam is an open celled foam.

However, it appears that the foam must inherently be an open cell foam because the pores of the foam are filled with the impregnate (column 9, line 67 to column 10, line 11). It is further noted that Reitz discloses a harden silicone rubber, which reads on the applicants' definition of a non-elastomeric polymeric matrix (See claim 3 and page 9 of specification). Reitz either anticipated or strongly suggested the claimed subject matter.

9. Claims 17, 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Fisher, Tsang, or Reitz. With regard to claim 17 and 18, none of Fisher, Tsang nor Reitz specifically disclose the pore size relationship of the pores of the metal foam. However, it is well known in the art that the pore size distribution directly effects the properties of the foam. It would have been within the level of ordinary skill in the art to have used a uniform pore sized


Art Unit: 1771

foam, motivated by the desire to obtain a foam having substantially uniform properties along the entire length of the foam. Likewise, it would have been obvious to the skilled artisan to have used a gradation pore size foam, motivated by the desire to obtain a foam having differing properties along the length of the foam. While a laminate containing a plurality of impregnated metal foam sheets are not literally disclosed in Fisher, Tsang or Reitz, the skilled artisan would have found it obvious to have formed a laminate containing a plurality of like impregnated metal foam sheets, motivated by the desire to further enhance of the properties exhibited by the use of one impregnated metal foam sheet. With regard to claim 21, none of Fisher, Tsang nor Reitz specifically disclose the thickness of the metal foam being no less than 3 times the average diameter of the cells. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized either the thickness of the metal foam or average cell diameter of the metal foam, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In the present case, it would have been obvious to the skilled artisan to have prepared a thicker metal foam, motivated by the desire to enhance the tensile strength and barrier properties of the metal foam. And, it would have been obvious to the skilled artisan to have prepared a metal foam having a smaller average cell diameter, motivated by the desire to have optimized the compressive, flexural, shear and tensile strength of the resulting impregnated foam.

Art Unit: 1771

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blaine R. Copenheaver whose telephone number is (703) 308-1261. The examiner can normally be reached on Monday-Thursday from 8:30 AM-6:00 PM and on alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Terrel H. Morris, can be reached at (703) 308-2414. The fax numbers for Technology Center 1700 are (703) 305-7718 and (703) 305-3601.

  
Blaine R. Copenheaver  
Primary Examiner  
Art Unit 1771

B. Copenheaver  
August 17, 1999